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10/666,595	09/18/2003	Elliott Malcolm Philofsky	ACR-0301	8539

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EXAMINER

THOMAS, ERIC W

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/666,595	Applicant(s) PHILOFSKY, ELLIOTT MALCOLM	
	Examiner Eric W Thomas	Art Unit 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, drawn to a capacitor, classified in class 361, subclass 306.2.
 - II. Claims 14-20, drawn to a method of forming a capacitor, classified in class 29, subclass 25.42.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the capacitor as claimed does not require the step of etching a first nickel layer to form the first nickel electrode (can be formed by a paste).

***APPLICANT SHOULD NOTE THAT CLAIMS 16-20 depend on claim 13. The examiner believes these claims should depend on claim 14 (drawn to a method of forming a capacitor).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Mr. Dale Halling on a provisional election was made WITHOUT traverse to prosecute the invention of I, claims 1-13. Affirmation

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of this election must be made by applicant in replying to this Office action. Claims 14-20 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

5. The disclosure is objected to because of the following informalities:

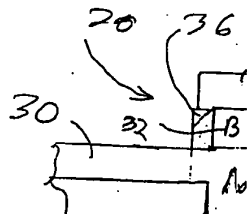
On page 6 line 23, change "fig. 6" to --fig. 5--.

Appropriate correction is required.

Drawings

6. The drawings are objected to because one of the reference numbers is not clear (see below)

Is this element 28 or 20?



7. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

8. Claim 5 is objected to because of the following informalities:
 9. Claim 5 recites the limitation "the second nickel lead" in line 1. There is insufficient antecedent basis for this limitation in the claim.
- Appropriate correction is required.

Claim Rejections - 35 USC § 102

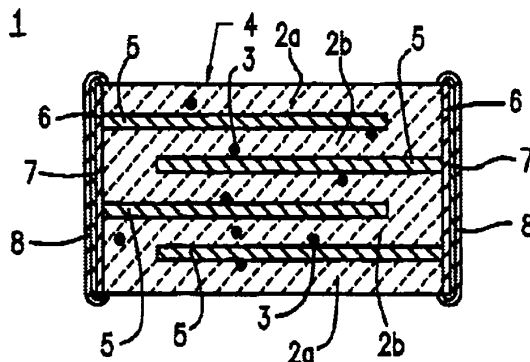
10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hata et al. (US 6,301,092).



Hata et al. disclose in fig. 1, a capacitor comprising a first nickel (col. 5 lines 1-4) electrode (5); a BCTZ dielectric (see example) dielectric covering a side of the first nickel electrode; and a second nickel (col. 5 lines 1-4) electrode (5) sandwiching the BCTZ.

Regarding claim 2, Hata et al. disclose the BCTZ contains 99 atoms of barium for 1 atom of calcium (see example).

12. Claims 7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Akram et al. (US 2004/0036157A1).

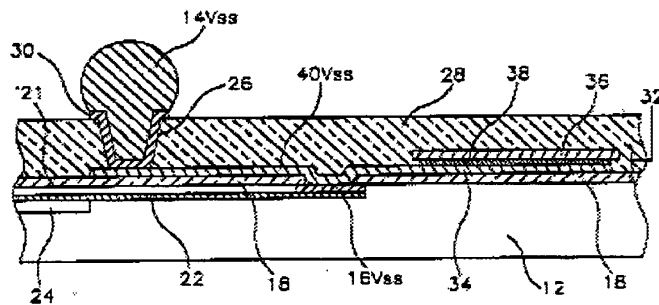


FIGURE 1D

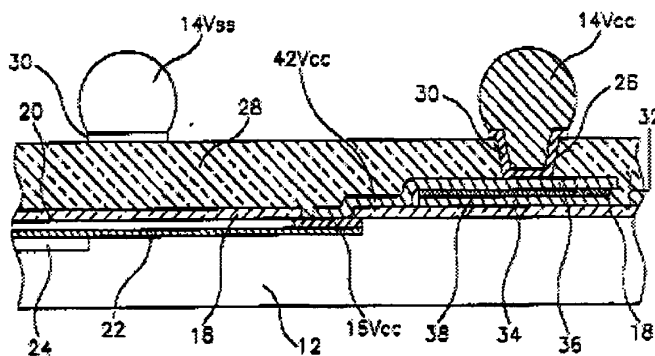


FIGURE 1E

Akram et al. disclose in fig. 1D, 1E, a capacitor for an integrated circuit a first nickel electrode (34) coupled to an electrical lead of the integrated circuit; a dielectric

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(38) applied to the first nickel electrode; and a second nickel electrode (36) applied to the dielectric and attached to a second electrical lead of the integrated circuit.

Regarding claim 9, Akram et al. disclose a portion of the second electrode on a passivation layer (18) of the integrated circuit.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

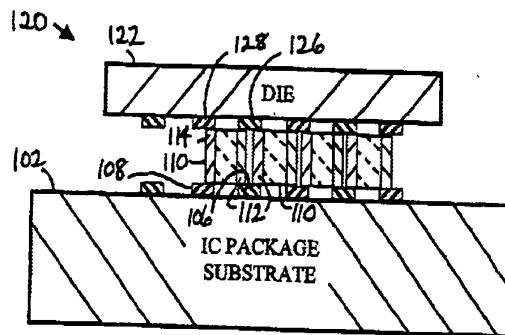
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hata et al. (US 6,301,092).

Hata et al. disclose the claimed invention except for the BCTZ contains eighty two to ninety atoms of titanium for each ten to eighteen atoms of zirconium.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the BCTZ so as to contain ninety atoms of titanium for each ten atoms of titanium, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

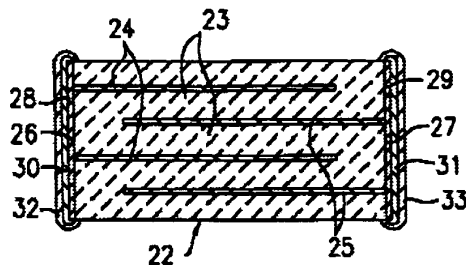
15. Claims 1, 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (US 2003/0102555) in view of Konaka et al. (US 6,556,423).



Patel et al. disclose in fig. 4, a capacitor connected to an integrated circuit.

Patel et al. disclose the claimed invention except for the capacitor comprises a first nickel electrode; a BCTZ dielectric covering a side of the first nickel electrode; and a second nickel electrode sandwiching the BCTZ.

Konaka et al. teach in fig. 1, a capacitor comprising a first nickel (col. 7 lines 13-18) electrode (25); a BCTZ (see abstract) dielectric covering a side of the first nickel electrode; and a second nickel (col. 7 lines 13-18) electrode (24) sandwiching the BCTZ.



It would have been obvious to a person of ordinary skill in the art at the time the invention was to use the capacitor of Konaka et al., in the system of Patel et al., since such a modification would provide a known capacitor in the system of Patel et al. wherein the capacitor has high electrostatic capacitance, and prolonged life.

Regarding claim 4, Patel et al. disclose the capacitor (first electrode) is adjacent to a lead on an integrated circuit (pad – 106, 108). Patel et al. disclose the claimed invention except for the lead on the integrated circuit is formed from an aluminum material. Aluminum is a well-known material used as lead (pads) in the IC/capacitor art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the leads of Patel et al. with an aluminum material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 5, Konaka et al. teach that the capacitor has nickel (col. 7 lines 53-56) leads (30, 31). Patel et al. disclose the capacitor is connected to a second lead on the integrated circuit. Patel et al. do not disclose the second lead is formed from an aluminum material. Aluminum is a well-known material used as lead (pads) in the IC/capacitor art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the leads of Patel et al. with an aluminum material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 6, Patel et al. disclose the second nickel lead is connected to solder bumps (126, 128).

Regarding the limitation(s), “the second nickel lead is a base for solder to be reflowed to form a bump” is a method of forming the device. The method of forming the

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device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965)

Regarding claim 7, Patel et al. disclose in fig. 4, a capacitor for an integrated circuit wherein a first electrode is connected to an electrical lead of the integrated circuit (pad – 108), a second electrode is connected to a second electrical lead of the integrated circuit (pad – 106).

Patel et al. disclose the claimed invention except for the capacitor having first and second electrodes formed from a nickel material wherein a dielectric is applied to a first electrode and the second electrode is applied to the dielectric layer.

Konaka et al. teach in fig. 1, a capacitor having first and second electrodes formed from a nickel material wherein a dielectric is applied to a first electrode and the second electrode is applied to the dielectric layer.

It would have been obvious to a person of ordinary skill in the art at the time the invention was to use the capacitor of Konaka et al., in the system of Patel et al., since such a modification would provide a known capacitor in the system of Patel et al. wherein the capacitor has high electrostatic capacitance, and prolonged life.

Regarding claim 8, Konaka et al. teach that the dielectric is formed from BCTZ.
16. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al. (US 2004/0036157) in view of Cronin (US 5,753,963).

Regarding claim 10, Akram et al. disclose the claimed invention except for an insulator applied to an edge of the BCTZ.

Cronin teaches that the use of a dielectric sidewall applied to an edge of an insulator (see fig. 2 element 18).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Akram et al. using a insulator applied to the edge of the dielectric material, since such a modification would provide additional insulation between the (lower) electrode and the dielectric of the capacitor.

Regarding claim 11, Cronin teaches that the insulator is applied to a portion of the first electrode.

17. Claims 7, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashemi et al. (US 5,049,979) in view of Akram et al. (US 2004/0036157A1).

Hashemi et al. disclose in fig. 2, a capacitor for an integrated circuit comprising: a first electrode (16) coupled to an electrical lead of the integrated circuit; a dielectric (17) applied to the first electrode; a second electrode (18) applied to the dielectric and attached to a second electrical lead of the integrated circuit.

Hashemi et al. disclose the claimed invention except for the first and second electrodes are formed from a nickel material.

Akram et al. teach that it is common in the capacitor art to use nickel electrodes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the first and second electrodes of the capacitor of Hashemi et al. from a nickel material as taught by Akram et al., since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its

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suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 12, Hashemi et al. disclose a layer of aluminum (22) is applied over the second electrode.

Regarding claim 13, Hashemi et al. disclose a wire lead is attached to the layer of aluminum.

Conclusion

In order to ensure full consideration of any amendments, affidavits, or declaration, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116 which will be strictly enforced.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W Thomas whose telephone number is (571) 272-1985. The examiner can normally be reached on M, T, Sa 9:00AM - 9:30PM; W, Th, F 5:30PM-10:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272-1984. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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